

Alkylation

Introduction

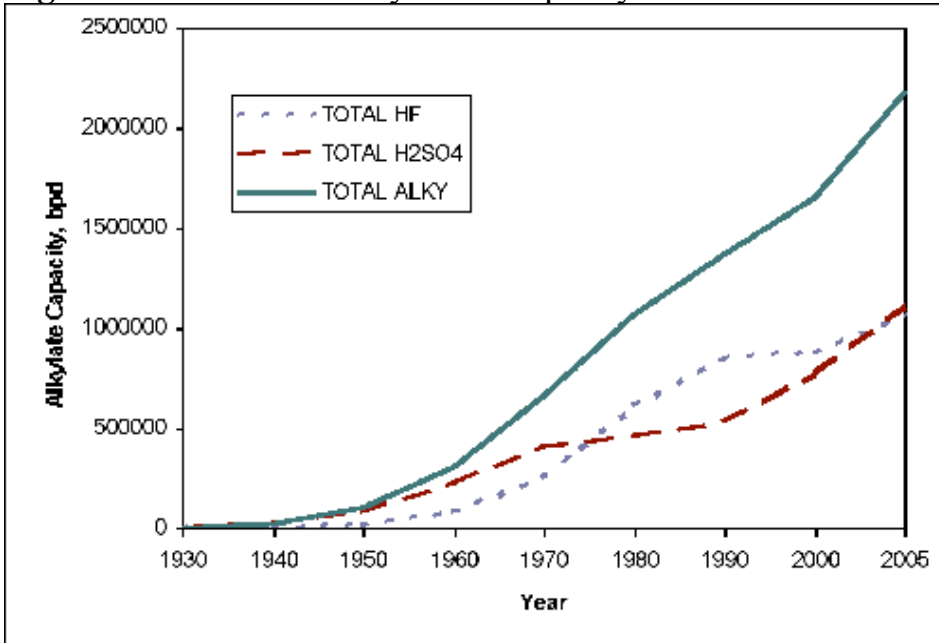
Refiners, worldwide, are producing cleaner-burning or reformulated gasoline (RFG) to meet requirements of environmentally-driven legislation. In the United States, 141 million people (almost half the population) live in areas where the air does not currently meet health-based standards. The EPA has mandated strict ozone and particulate requirements that force more areas into noncompliance and require the use of more RFG.

In addition, reduced volatile organic compounds (VOCs) and nitrous oxide (NOx) emissions are now required for Phase 2 Clean Air Act areas. At the same time, automakers are demanding lower gasoline sulfur levels and lower driveability indices (DIs). Making the future even less predictable is the uncertainty of sustained use of MTBE in meeting RFG oxygen specifications.

Other countries generally follow U.S. environmental policy, and will hopefully learn from our experience and mistakes. The World Bank is calling for a worldwide ban on leaded gasoline, and most population centers of the world are moving toward reformulated gasoline, to reduce air pollution.

Alkylation's importance to refiners continues to grow as alkylate has been termed "liquid gold" for reformulated gasoline. Although well-established in the United States, growth in alkylation capacity has continued through the last decade, as U.S. refiners have revamped and expanded existing units, replaced obsolete units, and in a few cases, added new grassroots units.

Figure 1. Worldwide Alkylation Capacity



Alkylation capacity outside the United States continues to grow as well. Increasing conversion capacity, plus increasing demand for gasoline in many areas of the world, has led to the installation of new grassroots alkylation units. Coupled with the need for more gasoline is the need for cleaner gasoline. We see alkylate filling those needs. Figure 1 shows the historic growth in global alkylation capacity.